

Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application:

WHAT IS CLAIMED IS:

1. (Original): A method for preparing a manganese compound for a lithium manganese complex oxide, comprising the step of simultaneously applying a mechanical force and a heat energy to a manganese compound to remove defects present in particles of said manganese compound, and to control the aggregation of micro particles and the shape of the aggregated particles.

2. (Currently amended): The method for preparing the manganese compound according to claim 1, wherein a mechanical force and a heat energy are simultaneously applied to said manganese compound with adding one or more kinds of preparations additives selected from the group consisting of LiOH, LiOH•H₂O, LiCH₃COO, LiCHO, LiCHO•H₂O, LiNO₃, and a transition metal salt having a melting point of 200°C or less.

3. (Original): The method for preparing the manganese compound according to claim 2, wherein the amount of said preparations is 0 to 20 wt% of the manganese compound.

4. The method for preparing the manganese compound according to claim 1, wherein said manganese compound is selected from the group consisting of electrolytic manganese dioxide (~~MnO₂; EMD~~), chemical manganese dioxide (~~MnO₂; CMD~~), Mn₂O₃ and Mn₃O₄.

5. (Currently amended): The method for preparing the manganese compound according to claim 2, wherein said manganese compound is selected from the group consisting of electrolytic manganese dioxide (~~MnO₂; EMD~~), chemical manganese dioxide (~~MnO₂; CMD~~), Mn₂O₃ and Mn₃O₄

6. (Original): The method for preparing the manganese compound according to claim 1, wherein the applied mechanical force is 0.1 to 1000 dyne/cm², the range of the temperature of the applied heat energy is 50 to 200 °, and the applied time is 5 minutes to 5 hours.

7. (Original): The method for preparing the manganese compound according to claim 2, wherein the applied mechanical force is 0.1 to 1000 dyne/cm², the range of the temperature of the applied heat energy is 50 to 200 °, and the applied time is 5 minutes to 5 hours.

8. (Currently amended): The method for preparing the manganese compound according to claim 1, wherein a manganese compound having a shape without edges ~~parts~~ is prepared ~~by using from~~ an angular shaped manganese compound as a raw material and applying mechanical force and heat energy.

9. (Currently amended): The method for preparing the manganese compound according to claim 2, wherein a manganese compound having a shape without edges ~~parts~~ is prepared ~~by using from~~ an angular shaped manganese compound as a raw material and applying mechanical force and heat energy.

10. (Original): A method for preparing lithium manganese complex oxide with a spinel structure, comprising the steps of:

a) mixing

(i) a manganese compound prepared by the method comprising the step of simultaneously applying a mechanical force and a heat energy to a manganese compound to remove defects present in the particles of said manganese compound and to control the aggregation of micro particles and the shape of the aggregated particles; and

(ii) a lithium compound ; and

b) calcining the mixture prepared in said step (a).

11. (Original): A method for preparing a lithium manganese complex oxide with a spinel

structure according to claim 10, wherein the (ii) lithium compound of step (a) is selected from a lithium salt group consisting of LiOH, LiOH•H₂O, LiCH₃COO, LiCHO, LiCHO•H₂O and LiNO₃.

12. (Original): A method for preparing the lithium manganese complex oxide with a spinel structure according to claim 10, wherein the temperature of calcination of said step (b) is 400 to 900 °C, and the time of calcination is 1 to 30 hours.

13. (Original): A method for preparing the lithium manganese complex oxide with a spinel structure according to claim 11, wherein the temperature of calcination of said step (b) is 400 to 900 °C, and the time of calcination is 1 to 30 hours.

14. (Original): A lithium or lithium ion secondary battery comprising an anode, an electrolyte and a cathode using a lithium manganese complex oxide powder with a spinel structure as an active material, wherein said active material is a lithium manganese complex oxide with a spinel structure prepared by the method comprising the steps of:

a) mixing

(i) a manganese compound prepared by the method comprising the step of simultaneously applying a mechanical force and a heat energy to a manganese compound to remove defects present in particles of the manganese compound and to control the aggregation of micro particles and the shapes of the aggregated particles; and

(ii) a lithium compound; and

b) calcining the mixture.

15. (New): A method for preparing a manganese compound that is used for preparing a lithium manganese complex oxide, comprising the step of simultaneously applying a mechanical force and a heat energy to a manganese compound to remove defects present in particles of said manganese compound, and to control the aggregation of micro particles and the shape of the aggregated particles.